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# Stakeholder Website

- Dynamic/Interactive Charting Capabilities
- Online Graphing Of The Data In User-Defined Formats
- Trend Analysis – Time Series Of Pollutant Data – By Species, Monitor And Region
- Back Trajectory Analysis And Meteorological Evaluations





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## Stakeholder Website

- Data Retrieving In User-friendly Interface
- Primary Interactive Web Charting For Time Series In User-query Format
- Meteorological Influence (Wind) In Temporal And Spatial Distribution For High PM Days



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# Stakeholder Website

- Online Point Source Modeling Capabilities
- Multi Dimensional Plotting Capabilities  
Three-Dimensional ( $x, y, z$ ), And Time ( $t$ )
- Statistical Analysis Of Pollutant Profiles  
And Distributions



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# Stakeholder Website

- Back Trajectory Analysis Featuring Animation And Individual Trajectory.
- Trajectory Cluster Analysis.
- Plume Dispersion Modeling Demo.





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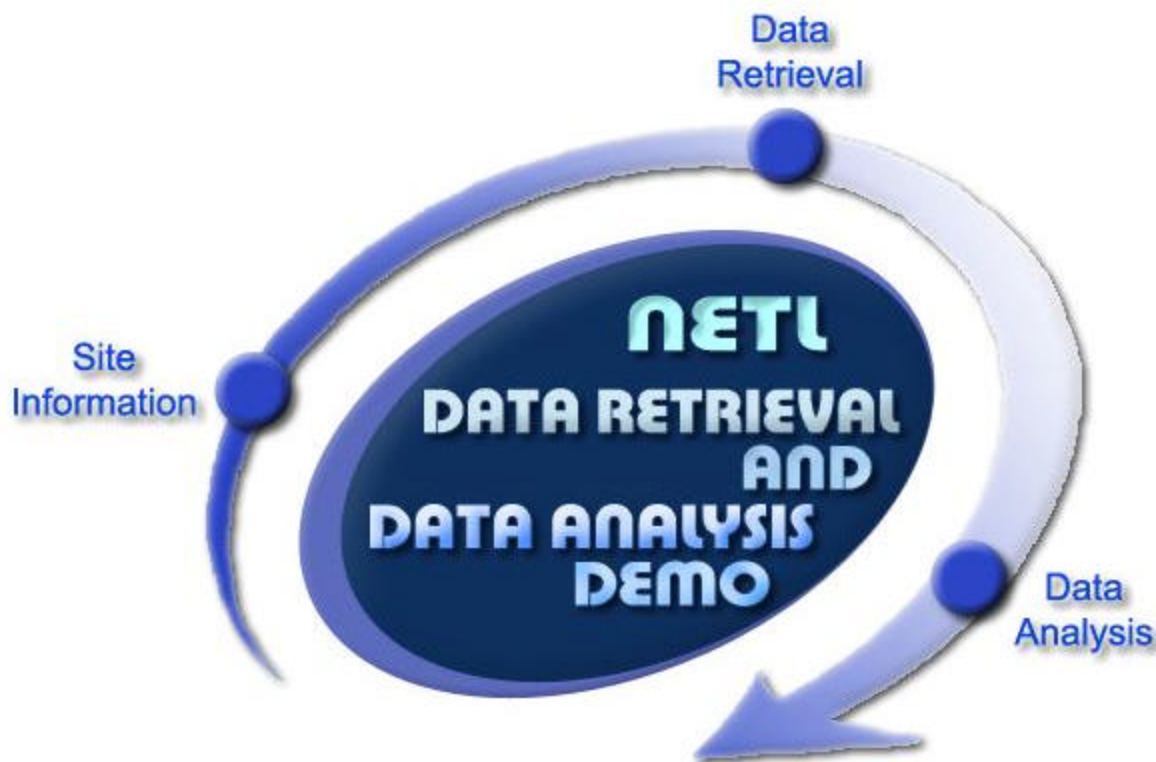
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# Stakeholder Website

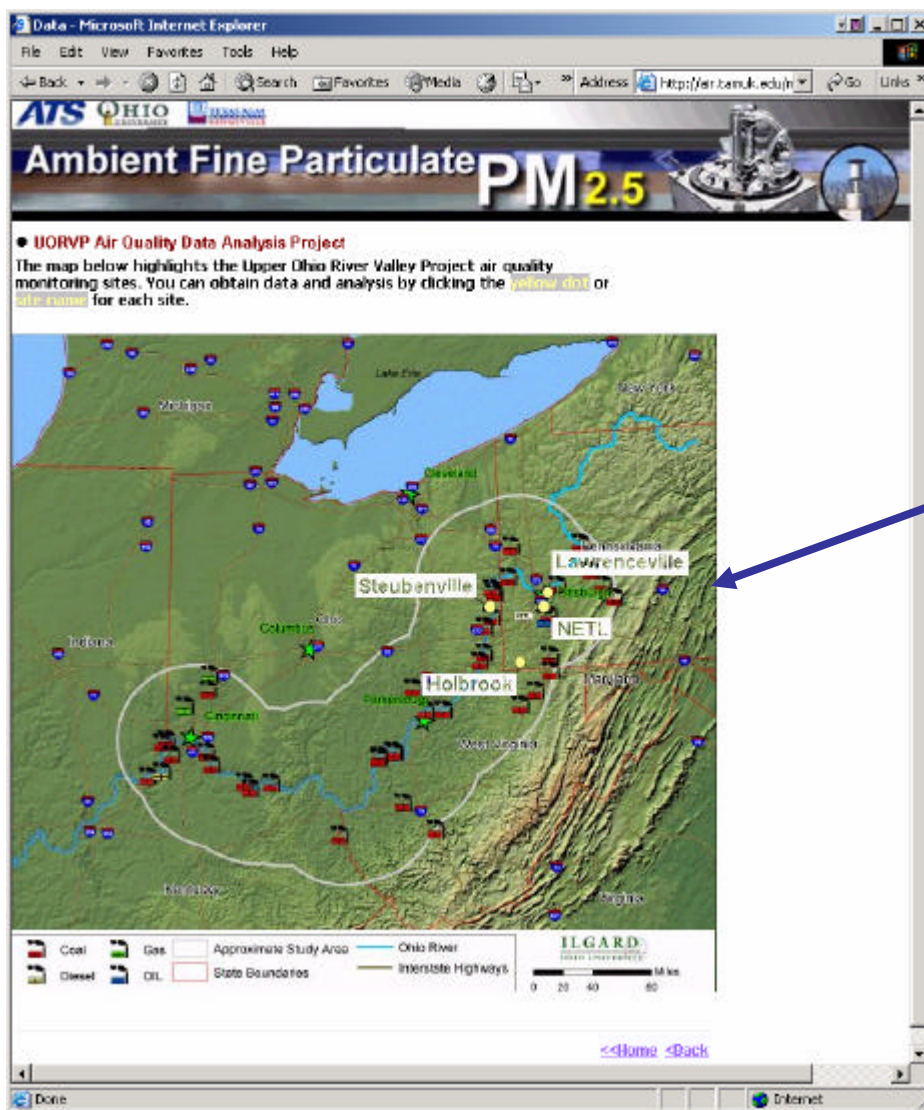




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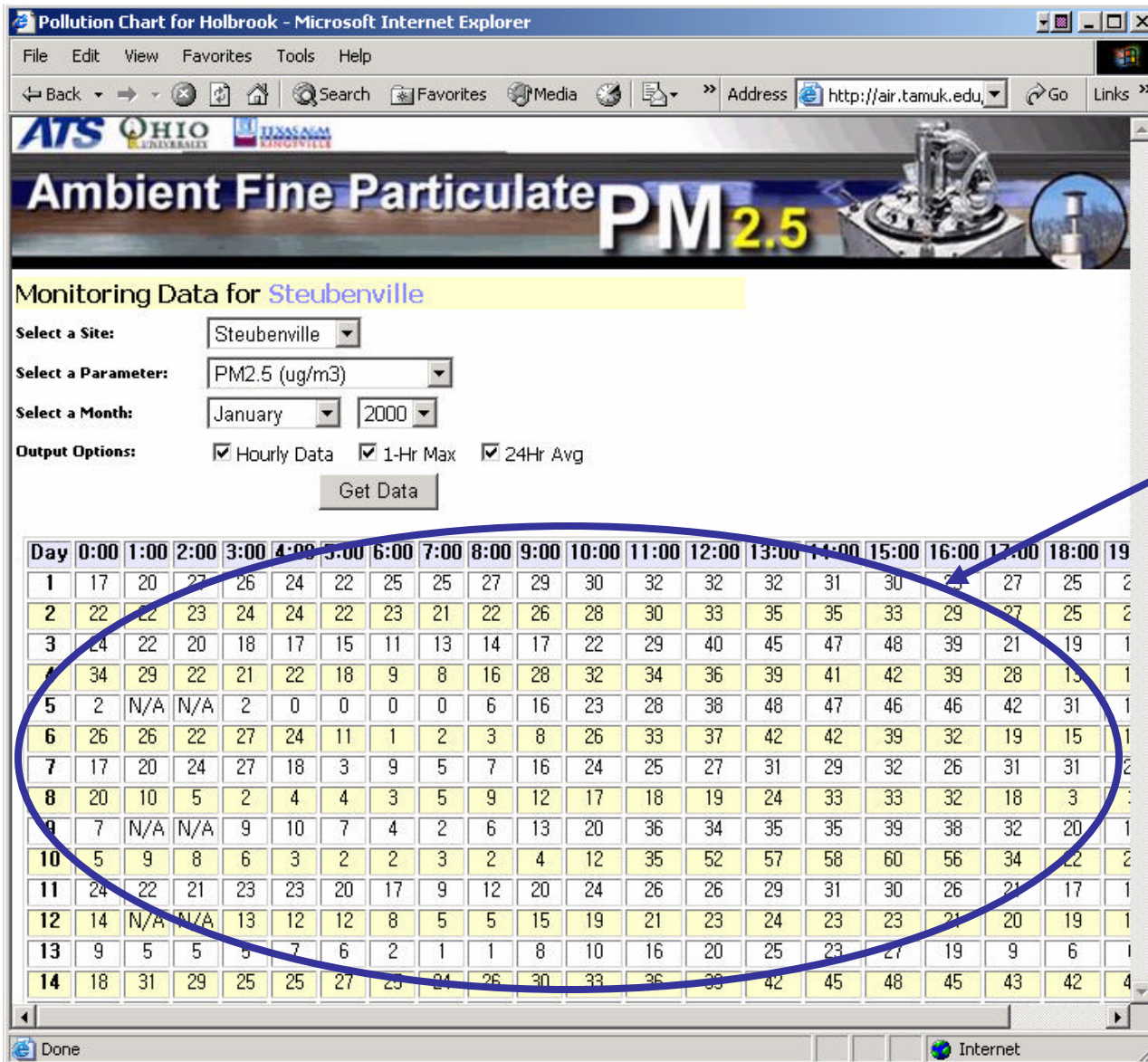
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If you click on each site, detailed information on the site characteristics and data availability will be shown.





Retrieved Data  
in a Tabular  
Format







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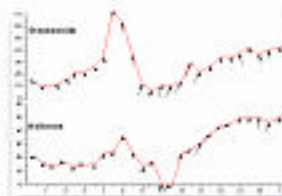
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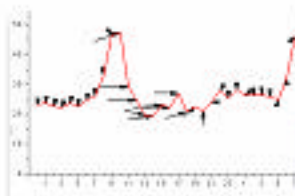
# PM<sub>2.5</sub>



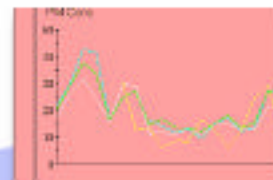
## Stakeholder Website



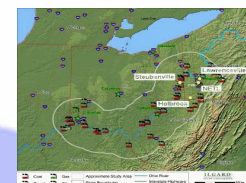
Comparison by Sites



Meteorological  
Influence



Time Series Plot



Plume Dispersion

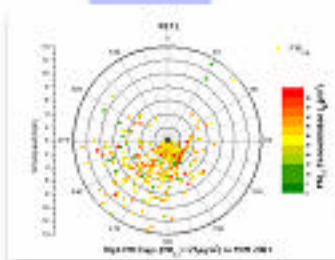


Wind Characteristics

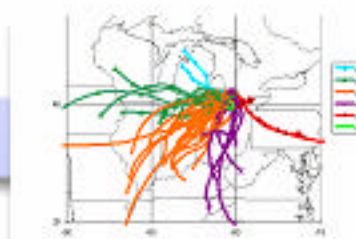
## DATA ANALYSIS



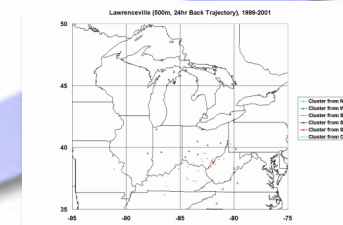
Cluster Analysis



Pollution Rose



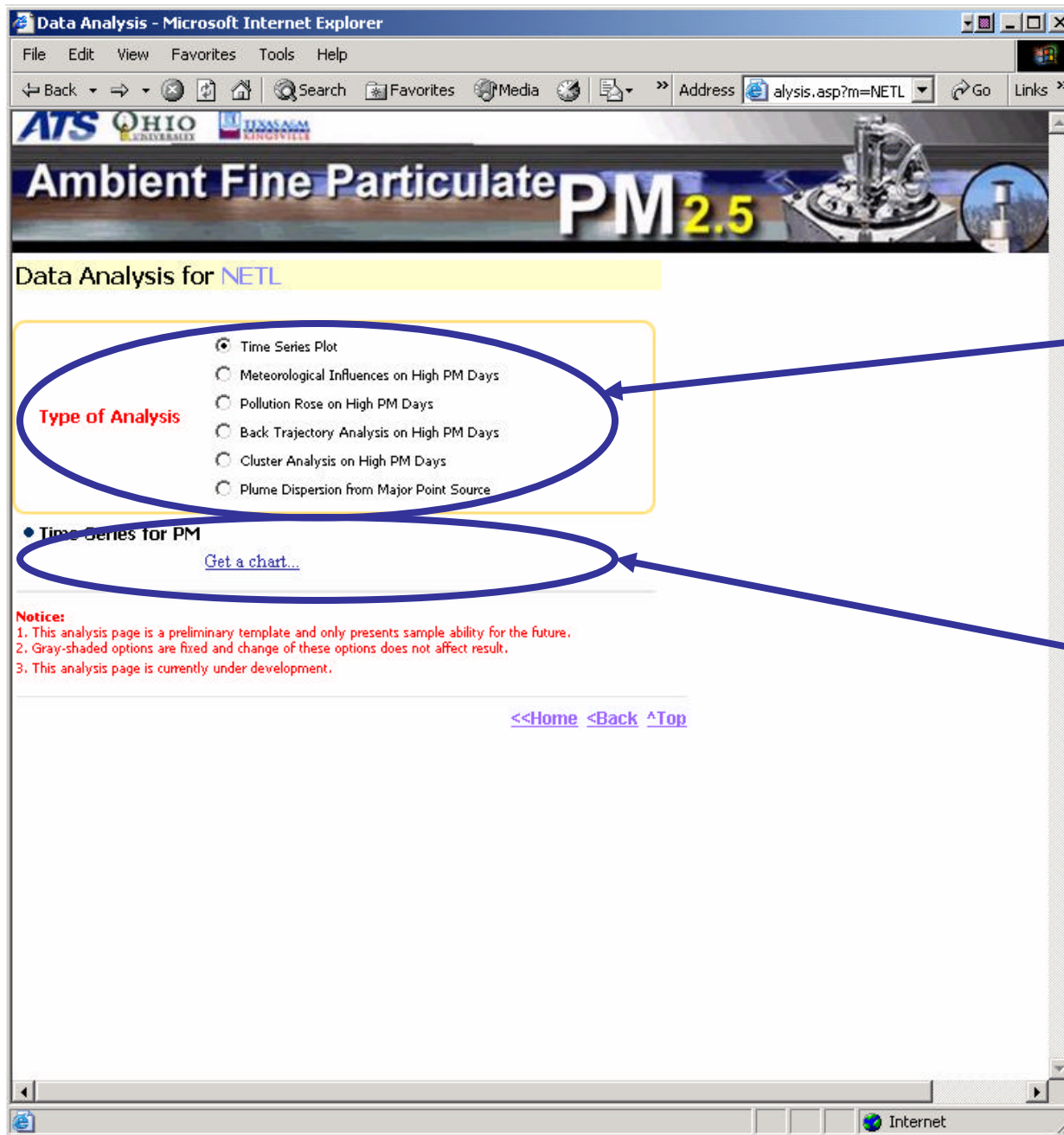
Trajectory Analysis



(Trajectory Animation)







Main entry  
menu for data  
analysis

Description of  
the selected  
menu item



Pollution Chart for Holbrook - Microsoft Internet Explorer

File Edit View Favorites Tools Help


Back Forward Stop Home Search Favorites Media Address NETL&submit=Move Go Links

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- National Energy Technology Laboratory

Monitor Name	NETL	County	Allegheny, PA
Latitude	40°30'65"	Longitude	79°9'94"
Note	This site is located at an elevation of 250 m in Pittsburgh. This site is not near any major road or freeway, and thus high concentrations of fresh automotive emissions are not expected. No major point sources of air pollutants are close to the site.		

Monitor Image is N/A.



- [Data Retrieval Sample](#)
- [Data Analysis Sample](#)
- Select Other Site

[<<Home](#) [<Back](#) [^Top](#)

Done Internet

Site description

Site map information



Pollution Chart for Holbrook - Microsoft Internet Explorer

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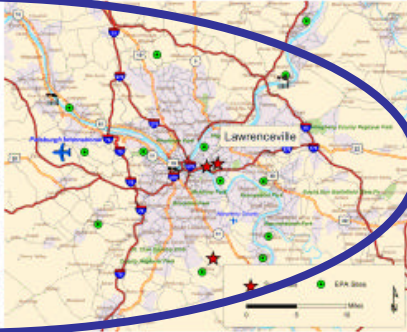

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- Lawrenceville

Monitor Name	Lawrenceville	County	Allegheny, PA
Latitude	40°46'53"	Longitude	79°56'03"
Note	This site is maintained by Allegheny County Health Dept. This site is affected by emissions from heavy traffic in the area. Coke processing facilities and coal-fired power plants are located to the northwest along the Ohio River.		



- [Data Retrieval Sample](#)
- [Data Analysis Sample](#)
- Select Other Site

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Done Internet

Site description

Site image and map





Pollution Chart for Holbrook - Microsoft Internet Explorer



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- Holbrook

Monitor Name	Holbrook	County	Greene, PA
Latitude	39°51'60"	Longitude	80°28'50"
Note	This site is maintained by PDEP. Holbrook is located in a rural farming area in the very southwestern corner of Pennsylvania. There are no major point sources of anthropogenic emissions near the Holbrook site.		



- [Data Retrieval Sample](#)
- [Data Analysis Sample](#)
- Select Other Site

<<Home <Back ^Top

Done Internet

Site description

Site image and map





Pollution Chart for Holbrook - Microsoft Internet Explorer



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- Steubenville

Monitor Name	Steubenville	County	Jefferson, OH
Latitude	40°36'17"	Longitude	80°61'47"
Note	This site is located at an elevation of 110m above the river. The region from Steubenville OH, south to Moundsville WV contains several large point sources, including coal-fired power plants, steel mills and coke facilities. Many of these point sources are in the Ohio River Valley close to Steubenville.		



- [Data Retrieval Sample](#)
- [Data Analysis Sample](#)
- Select Other Site

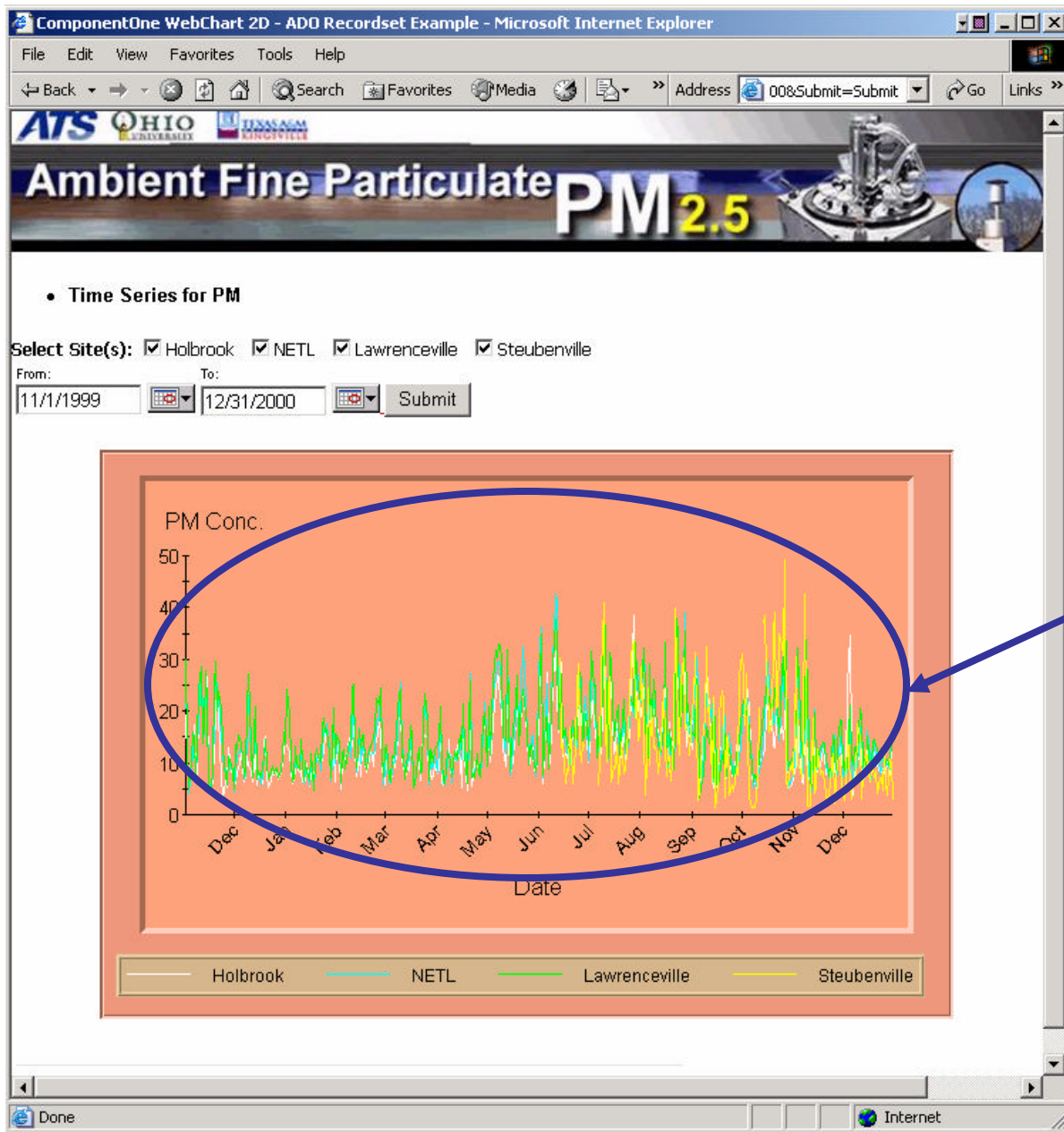
[<<Home](#) [<Back](#) [^Top](#)

Done Internet

Site description

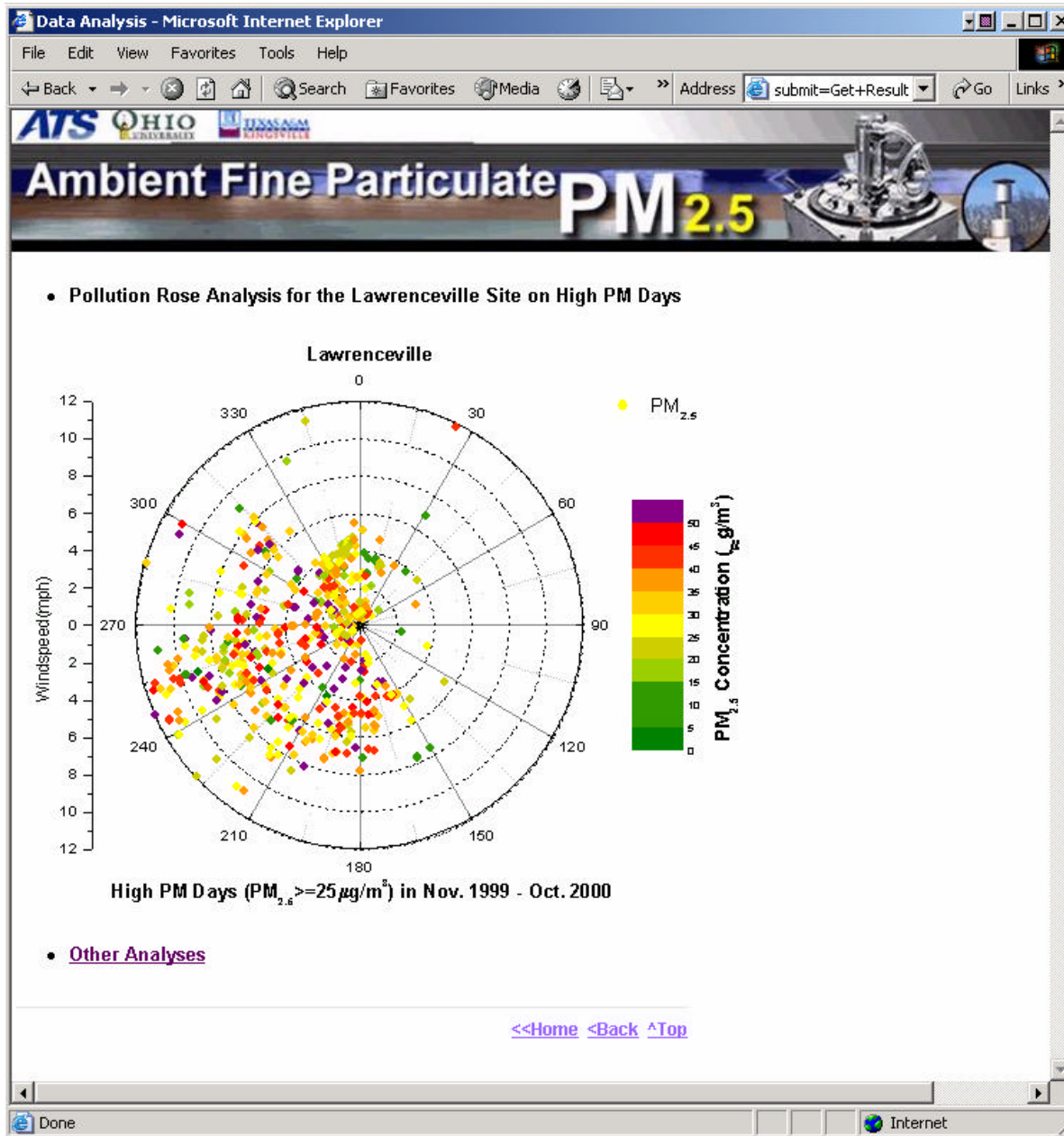
Site image and map





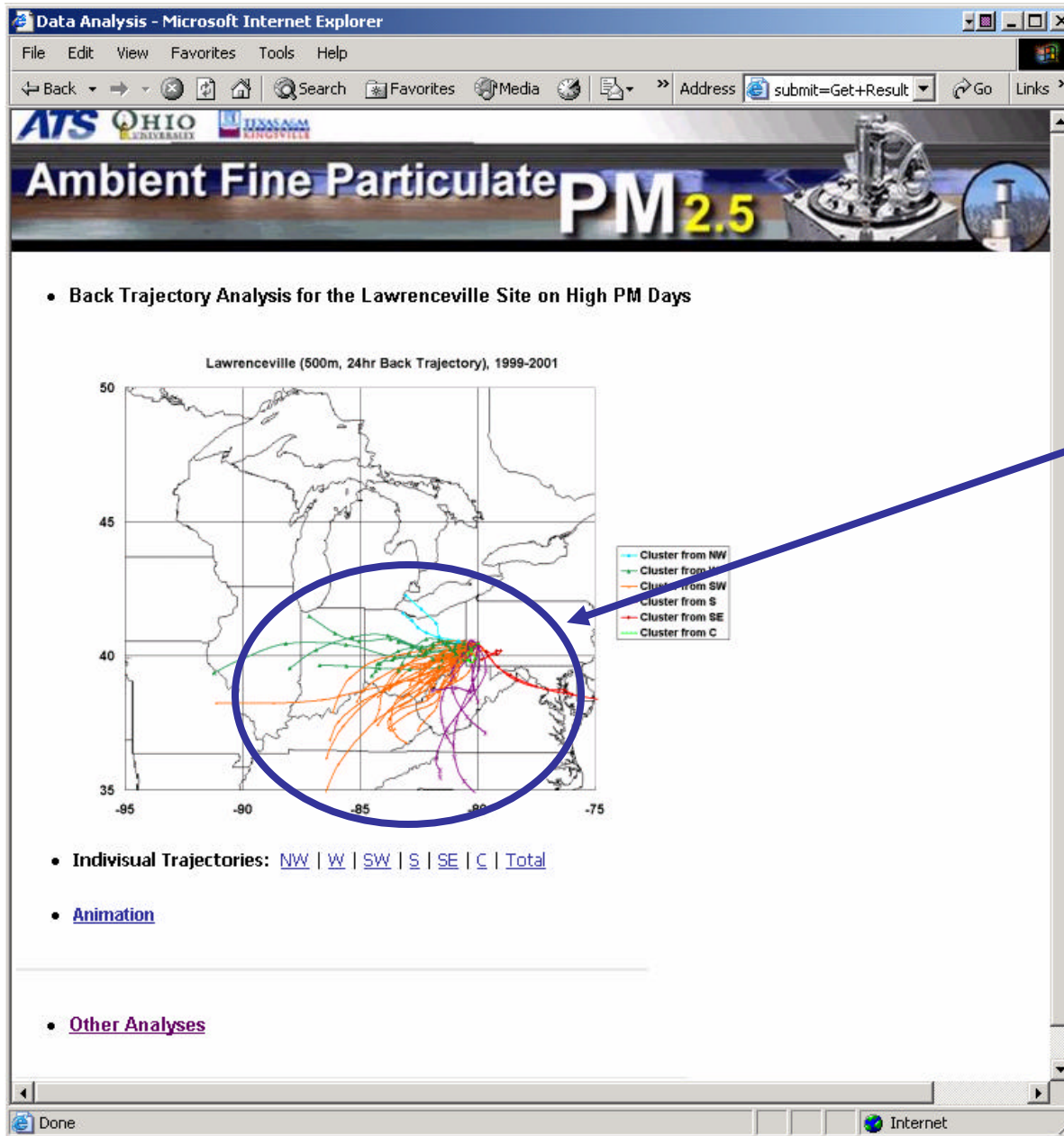
Time series of the PM data for the selected sites





- Regional characteristics of meteorological influences (wind) on  $PM$  level
- Directional distribution of  $PM$  concentration with wind speed

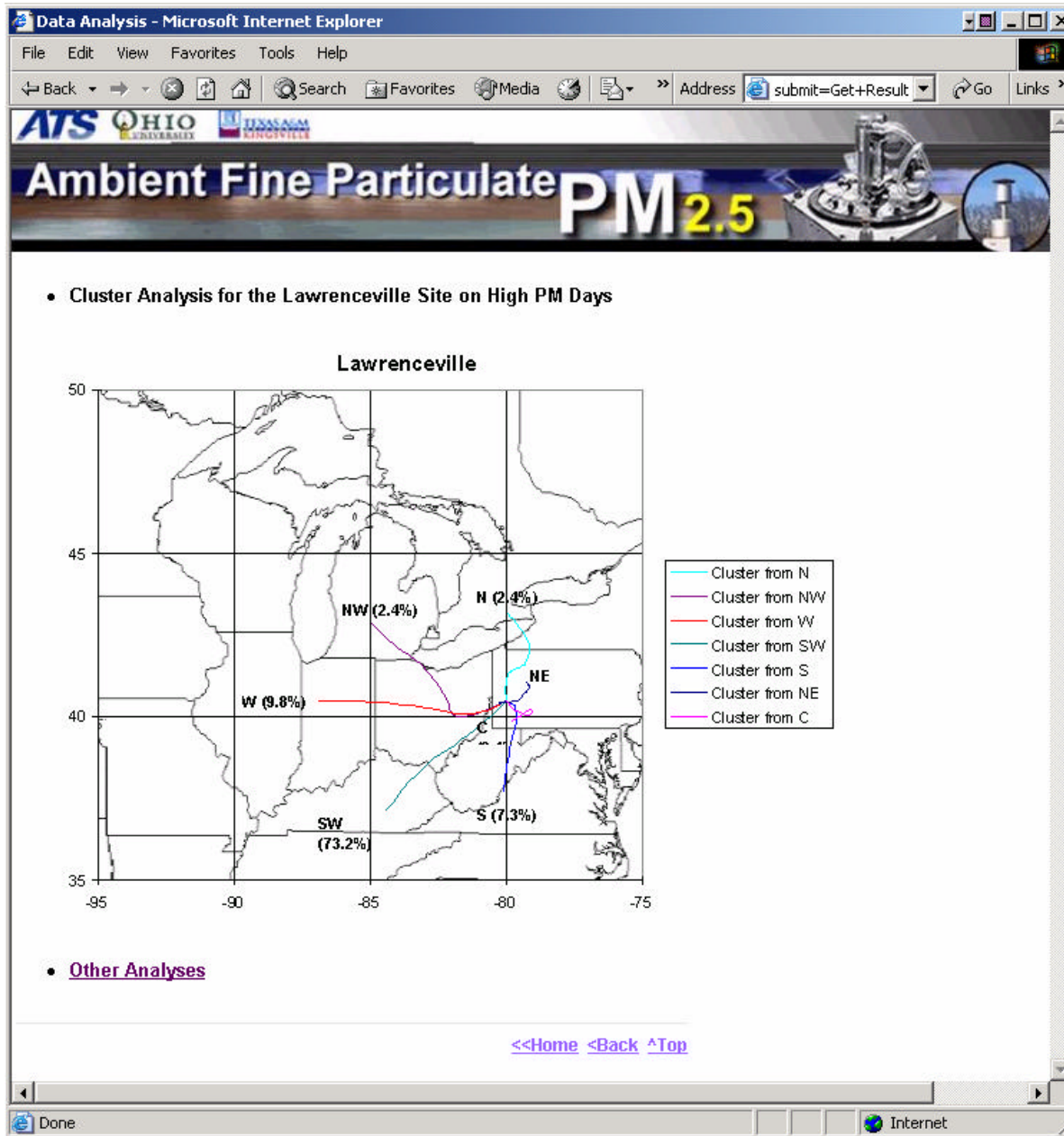




Back trajectory analysis using HYSPLIT4 Model to evaluate long-range transport of pollutants

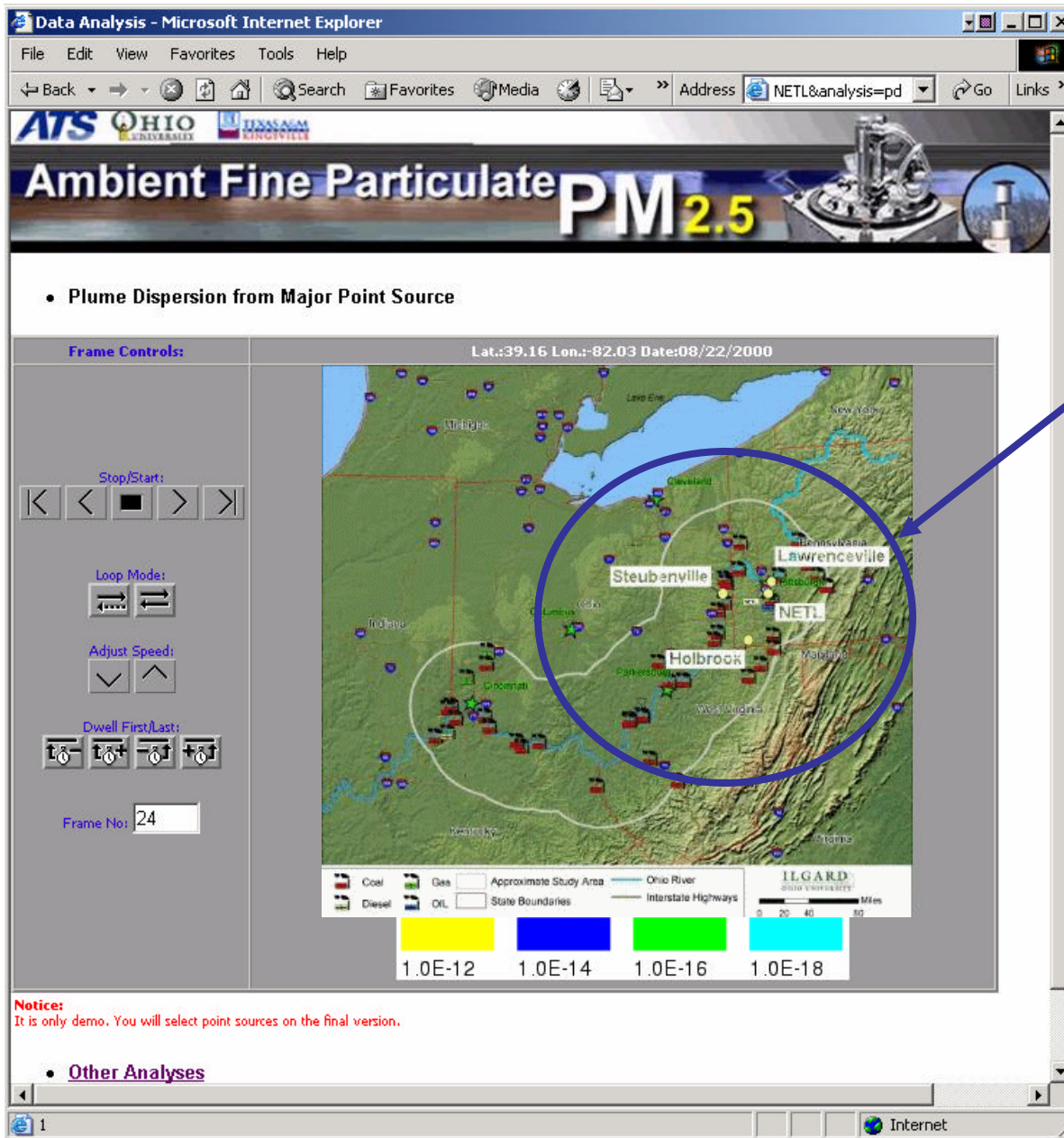






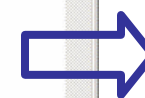
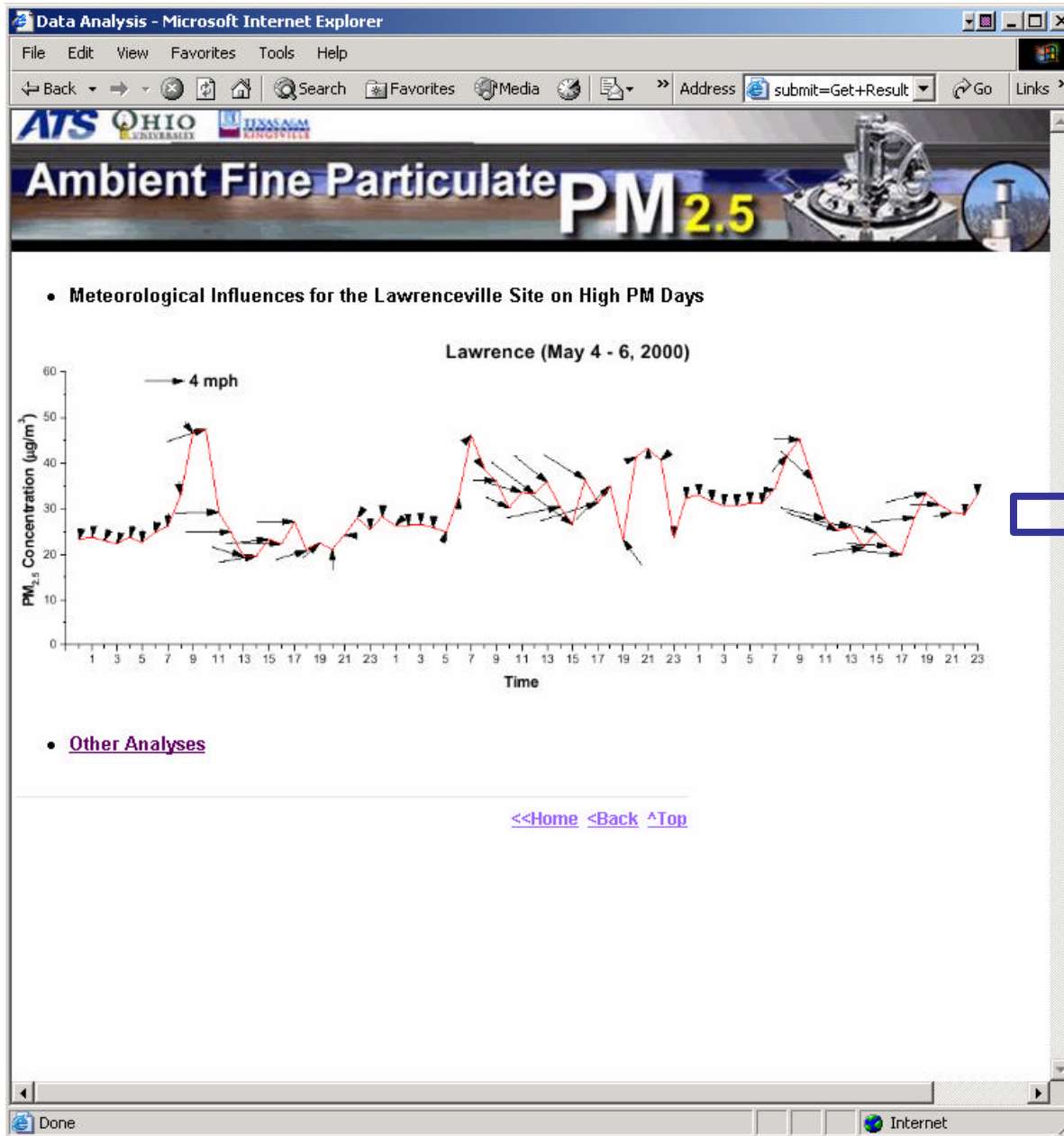
- Cluster analysis segregating and merging each trajectory based on its direction and/or similarity
- A useful method to identify the pollutant source region





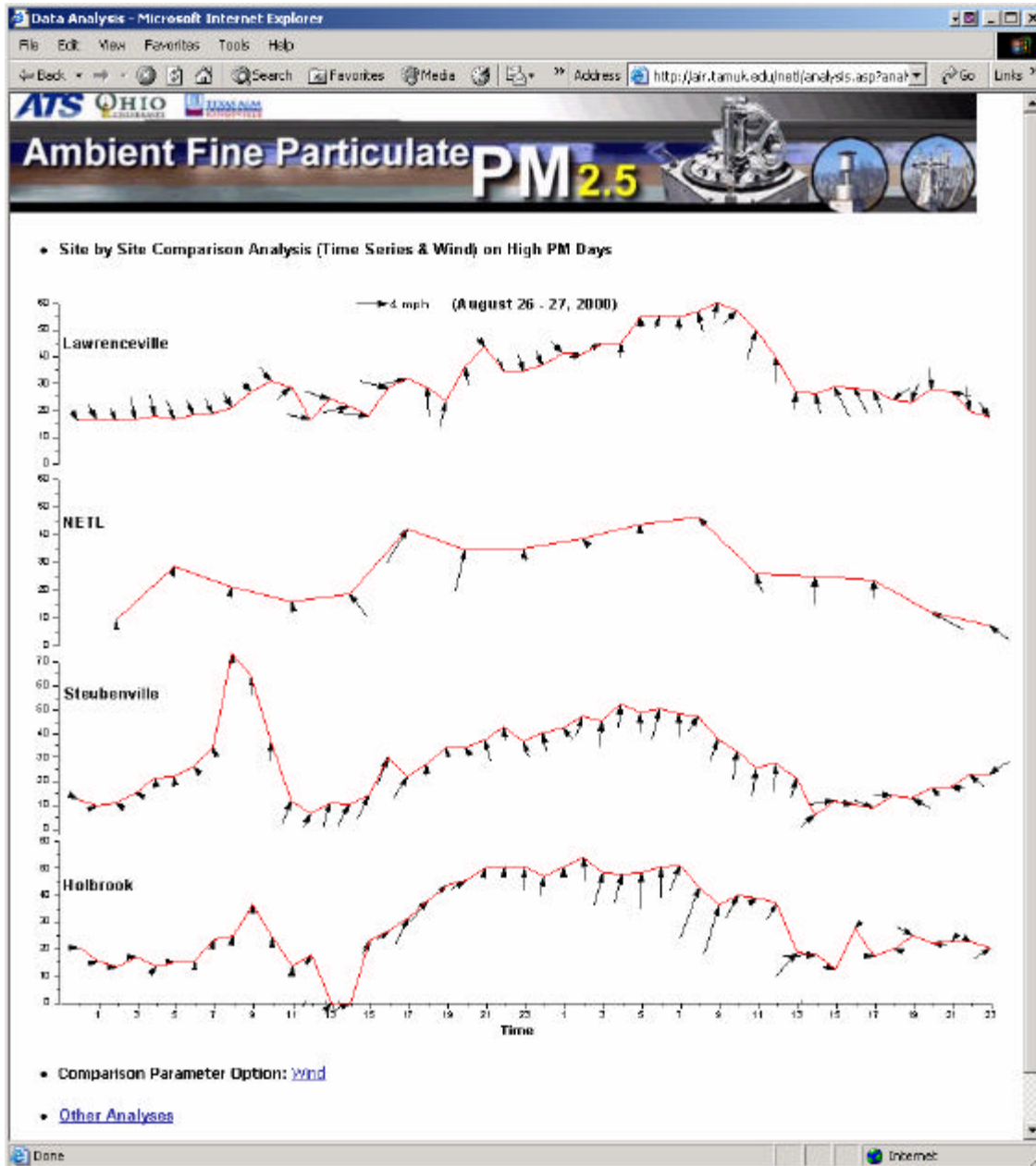
Regional and local impacts of point sources (power plants) using online dispersion modeling tools





PM vs. wind direction  
and speed by time

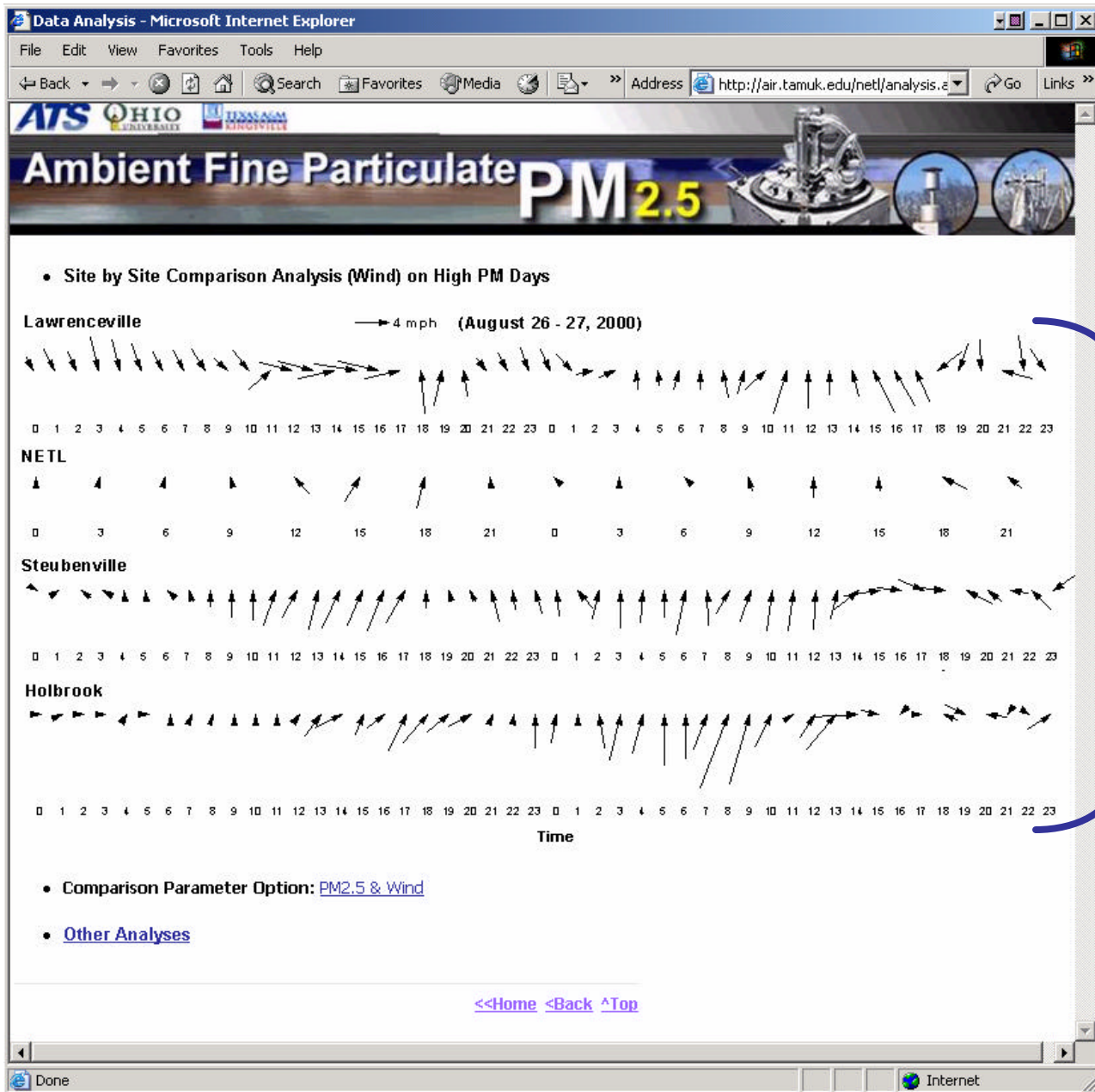




- Diurnal distribution and spatial comparison of PM
- Influence of wind speed and direction on PM level

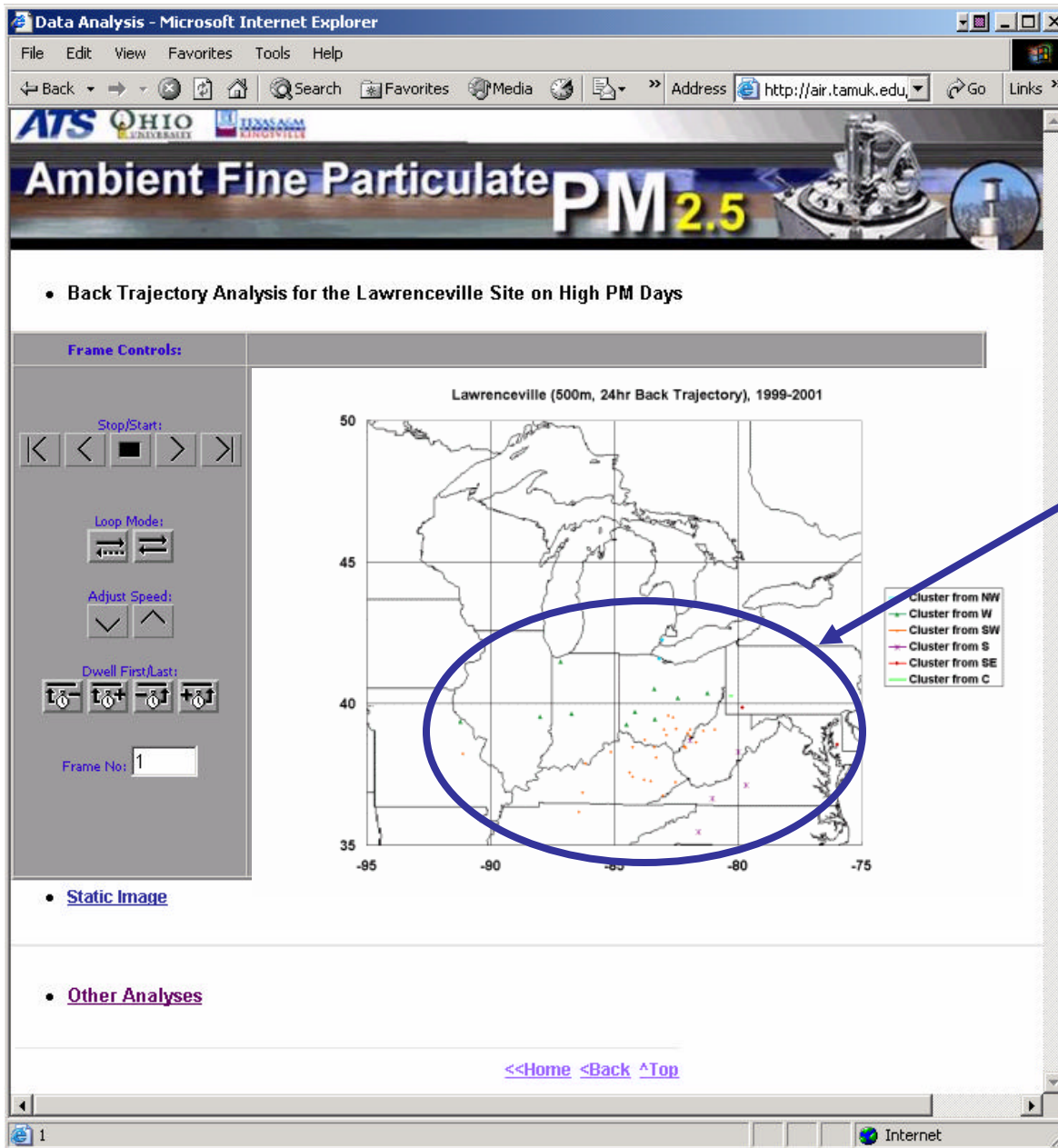






Diurnal  
comparison of  
wind shifts by  
sites





Animation of back trajectories showing long range transport impacting the monitoring sites



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## Public Website

- Publicly accessible to everyone without log-in
- Different from the one for stakeholders, sponsors, and developers
- Designed as an information/decision support center and an educational tool
- Provide clear and concise data summaries from the monitoring programs
- Include easy-to-understand graphical representation of the data
- Reviewed continuously by environmental and community representatives



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# Online Help Feature

- Support both the sponsor/stakeholder and the public interactively
- Give depth, understanding, and context to the environmental data presented
- Assist the user at any level of scientific background
- Assist the following general topics:
  - Definitions of the terminology
  - Explanation of the Federal and State Regulations
  - Background information of air pollutants
  - Effects of meteorology on air pollution episodes
  - Significance of the data to public health
  - Information on community-based efforts
  - Navigation of the website





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## Graphical Representation of Data

- Developed by Geographic Information Systems (GIS), graphing, and charting components
- Provide spatial-temporal representations
- Linked to Federal and regional mapping projects
- Provide information for the following:
  - Historical trends in air pollution
  - Influences of meteorology on air quality
  - Population and potential health impacts of air quality
  - Other health related air quality indices



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# Performance Testing

- A detailed testing program will be provided as follows:
  - interactive user feedback
  - discussion forums
  - periodic email notifications and announcements
- A section of the website will be dedicated for feedback from beta-testers of this application.